IN THE CLAIMS:

1. (cancelled)

2. (cancelled)

3. (cancelled)

4. (previously presented) A method of operating a magnetic resonance imaging system having a first coil and a second coil to achieve an imaging volume, said method comprising:

in a first mode, achieving the imaging volume by using a sum field from both of the coils; and

in a second mode, achieving the imaging volume by using a difference field from both of the coil,

wherein $P1$ and $S1$ are primary and shield radii for the first coil, $P2$ and $S2$ are primary and shield radii for the second coil, and $P1<P2<S1<S2$, said method comprising achieving the current density for a small imaging volume coil by assuming that the primary and shield radii are $P2$ and $S1$ respectively and denoting the current density by $D1$.

5. (original) A method in accordance with Claim 4 further comprising achieving the current density for a large imaging volume coil by assuming that the primary and shield radii are $P2$ and $S2$ respectively and denoting the current density by $D2$.

6. (original) A method in accordance with Claim 5 further comprising denoting the initial current density for coil C1 by $E1 = 0.5 * (D1 + D2)$.

7. (original) A method in accordance with Claim 5 further comprising denoting the initial current density for coil C2 by $E2 = 0.5 * (D1 - D2)$.

8. (cancelled)

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